

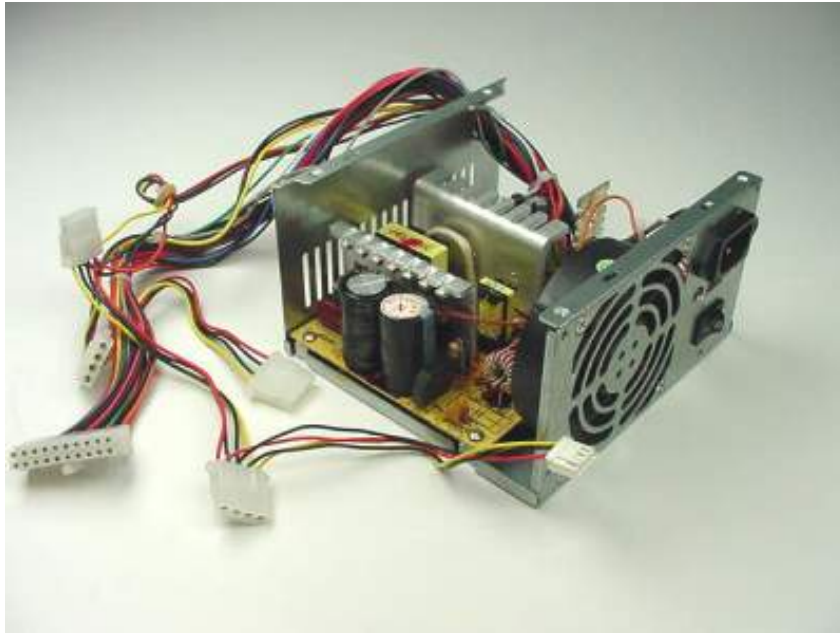
## Miss McFarlen's IP 10 – Computer Parts

### Power Supply

The power supply is very vital to a computer. Without it, a computer is just an inert box full of plastic and metal. The power supply converts the alternating current (AC) line from your home to the direct current (DC) needed by the personal computer. Power supplies, often referred to as "switching power supplies", use switcher technology to convert the AC input to lower DC voltages.

In a personal computer (PC), the power supply is the metal box usually found in a corner of the case. The power supply is visible from the back of many systems because it contains the power-cord container and the cooling fan.

Today you turn on the power with a little push button, and you turn off the machine with a menu option. These capabilities were added to standard power supplies several years ago. The operating system can send a signal to the power supply to tell it to turn off. The push button sends a signal to the power supply to tell it when to turn on.



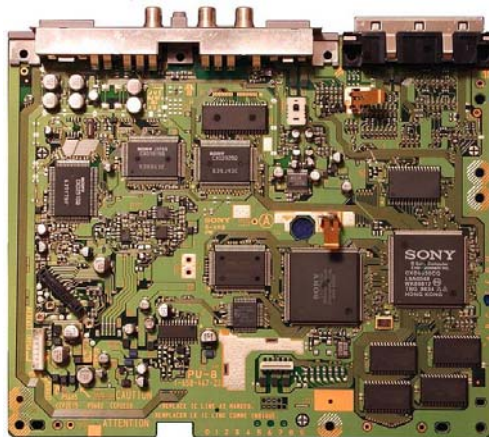
## Miss McFarlen's IP 10 – Computer Parts

### Motherboard

The motherboard or mainboard is the main circuit board in a complex electronic system, like a computer. It is the most 'central' part of a computer. All of the different parts of the computer are connected to the motherboard. This lets them work together. In most computers, the motherboard is a big green board, but many come in different colors like black, red and yellow. The motherboard is the glue that brings all the separate PC components together.

Normal electrical parts must be kept on the motherboard. These "on-board" parts include transistors and resistors. Many of the major parts that are attached to the board are able to be removed in the future so that they can be upgraded. The CPU and memory (or RAM) are examples of parts that are usually removable. To add additional core features, you may need to replace the motherboard entirely.

A typical desktop computer has its microprocessor (CPU), main memory, and other essential components connected to the motherboard. Other components such as external storage, controllers for video display and sound, and peripheral devices may be attached to the motherboard as expansion cards or via cables, although in modern computers it is increasingly common to integrate some of these peripherals into the motherboard itself.



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### Central Processing Unit (CPU)

The CPU (or microprocessor) is a chip the size of a postage stamp. The processor is an extremely important part to the computer. The microprocessor controls how data is sorted and directs the flow of data. The CPU sends signals to control the other parts of the computer, almost like how a brain controls a body. The CPU is an electronic machine that works on a list of things to do, called 'instructions'. It reads the list of instructions, one instruction at a time, and does each one in order. A list of instructions that a CPU can read is a computer program. The CPU of a computer is connected electronically to other parts of the computer, like the video card, or the BIOS.

After running even a short while, modern CPUs can get very hot. To help dissipate this heat, it is necessary to attach a heat sink and a fan directly on top of the CPU. Typically, these come bundled with a CPU purchase.

Even very complicated programs can be made by combining many simple instructions. This is possible because each instruction takes a very short time to happen. Many CPUs today can do more than 1 billion (1,000,000,000) instructions in a single second.



## **Miss McFarlen's IP 10 – Computer Parts**

### **Computer Memory**

The computer memory is a temporary storage area. It holds the data and instructions that the Central Processing Unit (CPU) needs. Before a program can be run, the program is loaded from a storage medium into the memory. This allows the CPU direct access to the program. Memory is a necessity for any computer.

The CPU calls instructions and data from the computer's memory. Because the same computer performs different tasks at different times, the memory is erasable. There are some programs and instructions which the computer needs, regardless of what function you are performing. These programs are often permanently recorded in the memory so they cannot be destroyed. As a result, the computer's memory usually consists of two parts:

### **Read Only Memory (ROM)**

This is the permanent memory which is used to store important control programs and systems software to perform a variety of functions, such as booting up or starting up programs. ROM is non-volatile. That means the contents are not lost when the power is switched off. Its contents are permanently written at the time of manufacture.

### **Random Access Memory (RAM)**

RAM is used as the working memory of a computer system. It stores input data, intermediate results, programs, and other information temporarily. It can be read and written. Normally, the random access memory is in the form of computer chips. Usually, the contents of RAM are accessible faster than other types of information storage but are lost every time the computer is turned off.



### **Bits and Bytes**

Because the computer is an electrical device, it understands only electricity on and electricity off. This is expressed by using two symbols – 0 and 1 – which are called binary digits or bits. Numbers and text characters are represented as codes, which are made up of combinations of 0s and 1s. Eight bits – any combination of 0s and 1s – form one character or symbol. For example, the letter A is denoted by the code 01000001. The basic working unit of the computer's memory is therefore a group of eight bits, which is called a byte. The computer's memory consists of many thousands of bytes.

## **Miss McFarlen's IP 10 – Computer Parts**

### **Expansion Cards**

Expansion cards are located on the motherboard and can be accessed towards the back of the computer using cables. The expansion card is basically a chip that you can put into the motherboard or the backplane of your computer to expand on something that the mother board may lack on.

### **Sound Card**

A sound card (audio card) is the part of the Computer hardware that controls the input and output of the sound signals. A sound card is a chip that processes audio files to provide play back through computer speakers. Nowadays, most of the audio cards are integrated with the motherboard. That means they are built in onto a mainboard and cannot be removed. In other words it is not an expansion card anymore.

### **Graphics Card (Video Card)**

A graphics card is a type of expansion card that generates output images/ renders the image to display on the screen. A graphics card is a part of a computer that translates the binary data from the CPU (Computer Processing Unit) and turns them into pictures that you can see on your computer monitor. A graphics card is a special circuit board that controls what is shown on a computer monitor and calculates 3D images and graphics. A video card can handle two types of video images. First, they can be used to display a two-dimensional (2D) image like a Windows desktop, or a three-dimensional (3D) image like a computer game. Many computers have a basic video and graphics capabilities built-in to the computer's motherboard.

### **Network Card**

A network card is a piece of hardware that permits a computer to participate in a computer network. There are different kinds of networks, such as Ethernet or wireless LAN. The network cards for the different networks are different. Sometimes the network card is integrated on the motherboard. Each network card has a unique number; this is used for addressing. It is called the MAC address. Newer computers have a built in Network card built into the Motherboard.



## Miss McFarlen's IP 10 – Computer Parts

### Drives / Storage Devices

A hard disk drive (HDD), hard disk or hard drive, is something used by computers to store information. Hard disks use magnets to store information. The hard drive's function is to store all the files, and software the computer will ever use. Any file or software program used by RAM most likely will come from this drive. A CD or DVD drive is often located on the front of a system unit and is used to read CD, CD-ROM, or DVDs.



A Data Storage device is a storage medium. Most often the term is used with computers. Data storage devices can permanently hold data, like files. Common data storage devices are:

- USB flash drives
- Hard disk drives
- Compact Discs
- DVDs
- HD DVDs
- Blu-ray Discs

### USB Flash Drive

A USB flash drive is a small device that stores information and files from a computer. Flash drives are an easy way of moving data between different computers or devices to be read or edited. Flash drives are connected to a computer using a USB port, which can be found on most devices. Flash drives take their name from the flash memory used to hold files. Flash memory is a type of memory that does not need any moving parts, unlike a CD or Floppy disk. USB flash drives have some advantages over other portable storage devices. They are much smaller than floppy disks, and can hold much more data. They do not have moving parts, so they should be more reliable.

### Compact Disc Read-Only Memory (CD-ROMs)

Compact Discs function like a hard drive in that they store large amounts of memory. What separates them is their mobility and optical storage technology. Their storage capacity is also very limited compared to hard drives. A big difference is that you have to have a special drive called a CD writer or burner to write to CD's, otherwise they can only be read. CD-ROMs can be used to put computer files on in the same way as audio is put on CDs. The computer 'reads' the disc using a CD-ROM drive.